

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for producing a signature on a DVD disc comprising:
partially disabling error correction prior to EFM+ encoding; and
introducing at least one ambiguous symbol into an ECC block during EFM+ encoding, said ambiguous symbol having a value which can be read as either a first value or a second alternate value.
2. (Original) The method according to claim 1, wherein introducing at least one ambiguous symbol comprises:
selecting at least one byte in at least one column of the ECC block.
3. (Original) The method according to claim 2, wherein introducing at least one ambiguous symbol further comprises:
encoding at least one data symbol in said column by the corresponding ambiguous representation of said at least one data symbol.
4. (Original) The method according to claim 2, wherein partially disabling error correction comprises:
invalidating at least one outer parity symbol (P0) of the 16 PO bytes corresponding to the at least one column; and
invalidating at least one inner parity symbol (PI) of the 10 PI bytes corresponding to each row containing one of the invalidated outer parity symbols.
5. (Original) The method according to claim 4, wherein invalidating comprises:
invalidating the bits in said at least one outer parity symbol (P0) and said at least one inner parity symbol (PI).

6. (Original) The method according to claim 2, wherein partially disabling error correction comprises:

invalidating at least eight outer parity symbols (P0) of the 16 PO bytes corresponding to the at least one column.

7. (Original) The method according to claim 6, wherein partially disabling error correction further comprises:

invalidating at least five inner parity symbols (PI) of the 10 PI bytes corresponding to each row containing one of the invalidated outer parity symbols.

8. (Original) The method according to claim 6, wherein invalidating comprises:
invalidating the bits in at least one of the at least eight outer parity symbols (P0).

9. (Original) The method according to claim 7, wherein invalidating comprises:
invalidating the bits in at least one of the at least five inner parity symbols (PI).

10. (Original) The method according to claim 6, wherein invalidating comprises:
substituting at least one of the at least eight outer parity symbols (P0) with a different symbol.

11. (Original) The method according to claim 7, wherein invalidating comprises:
substituting the bits in at least one of the at least five inner parity symbols (PI) with a different symbol.

12. (Currently amended) A method for validating a signature on a DVD comprising:
comparing the number of reads for at least one unprocessed sector within the ECC block to be read correctly with the number of reads for at least one processed sector within said ECC block to be read correctly, wherein said ECC block comprises a partially disabled ECC written to the DVD.

13. (Original) The method according to claim 12, wherein said comparing comprises:
pre-determining a maximum allowable number of reads,

reading the processed sector up to said maximum allowable number of reads or until successfully read;

comparing the number of reads of at least one unprocessed sector with the number of reads to successfully read of said at least one processed sector; and

if the number of reads for the processed sector is greater than the number of reads for an unprocessed sector then the signature is valid.

14. (Currently amended) A method for validating a signature on a DVD comprising:

comparing the time to successfully read at least one unprocessed sector within the ECC block with the time to read at least one processed sector within said ECC block, wherein said ECC block comprises a partially disabled ECC written on to the DVD.

15. (Currently amended) The method according to claim 14, wherein said comparing comprises:

reading said at least one processed sector until said at least one processed sector is successfully read or the reading of said at least one processed sector is timed out;

determining the time of reading said at least one processed sector; and

comparing the time to read at least one unprocessed sector with the time to successfully read said at least one processed sector; and

if the time of reading the processed sector is greater than the time of reading an unprocessed sector then the signature is valid.

16. (Currently amended) A method for producing a signature on a digital optical disc (DVD) comprising:

altering the value of at least one component in the lead-in zone of the DVD,

whereby, on reading the DVD structure of an authentic DVD, the altered value of said at least one component will be returned.

17. (Original) The method according to claim 16, wherein altering at least one component comprises:

changing the Burst Cutting Area (BCA) descriptor.

18. (Original) The method according to claim 17, wherein changing the BCA descriptor comprises:

setting the BCA descriptor to 0x80.

19. (Original) The method according to claim 16, wherein altering at least one component comprises:

changing the Disc manufacturing information (DMI).

20. (Original) The method according to claim 19, wherein changing the DMI comprises:

placing the DMI in one of a group of bytes including 0x01, 0x08, 0x10 and 0x80.

21. (Currently amended) A method for producing a signature on a digital optical disc (DVD) comprising:

non-destructively altering the content of at least one sector in the data zone of the DVD during encoding so that said at least one sector is generally unreadable.

22. (Original) The method according to claim 21, wherein altering at least one sector comprises:

altering the contents of the sector header.

23. (Original) The method according to claim 22, wherein altering at least one sector comprises:

altering at least one of a group including the ID (Identification Data), IED (ID Error Detection Code) and CPR_MAI (Copyright Management Information).

24. (Original) The method according to claim 21, wherein altering at least one sector comprises:

altering the IED according to the ID;
computing the EDC according the ID and the altered ID; and
altering the computed EDC.

25. (Original) The method according to claim 21, wherein altering at least one sector comprises:

after computing the EDC, altering at least one byte of the main data.

26. (Original) The method according to claim 21, wherein altering at least one sector comprises:

after computing the EDC, altering the computed EDC.

27. (Currently amended) A method for producing a signature on a digital optical disc (DVD) comprising:

appending ~~or replacing~~ at least one sector in the data zone of the DVD; and
amending said at least one sector in the data zone of the DVD so that said at least one sector is generally unreadable, wherein said appending and amending being performed during encoding.

28. (Original) The method according to claim 27, further comprising:

altering the contents of the sector header in the appended or replaced at least one sector.

29. (Original) The method according to claim 28, wherein altering at least one sector comprises:

altering at least one of a group including the ID (Identification Data), IED (ID Error Detection Code) and CPR_MAI (Copyright Management Information).

30. (Original) The method according to claim 27, wherein altering at least one sector comprises:

altering the IED according to the ID;
computing the EDC according the ID and the altered ID; and
altering the computed EDC.

31. (Original) The method according to claim 27, wherein altering at least one sector comprises:

after computing the EDC, altering at least one byte of the main data.

32. (Original) The method according to claim 27, wherein altering at least one sector comprises:

after computing the EDC, altering the computed EDC.

33. (Original) A method for producing a signature on a digital optical disc (DVD) comprising:

generating at least one sector, each of said at least one sectors requiring at least two read operations to be read correctly.

34. (Original) The method according to claim 33, wherein said generating comprises:
partially disabling error correction prior to EFM+ encoding; and
introducing at least one ambiguous symbol into an ECC block during EFM+ encoding.

35. (Original) The method according to claim 33, wherein at least one ambiguous symbol comprises:

selecting at least one byte in at least one column of the ECC block.

36. (Original) The method according to claim 35, wherein at least one ambiguous symbol further comprises:

encoding at least one data symbol in said column by the corresponding ambiguous representation of said at least one data symbol.

37. (Original) The method according to claim 35, wherein partially disabling error correction comprises:

invalidating at least one outer parity symbol (P0) of the 16 PO bytes corresponding to the at least one column; and

invalidating at least one inner parity symbol (PI) of the 10 PI bytes corresponding to each row containing one of the invalidated outer parity symbols.

38. (Original) The method according to claim 37, wherein invalidating comprises:

invalidating the sequence of bits in said at least one outer parity symbol (P0) and said at least one inner parity symbol (PI).

39. (Currently amended) A table for ~~converting-encoding~~ 8-bit ~~coded~~ data into 16-bit encoded data ~~code-words~~, comprising:

at least one 16-bit ~~code-word~~ encoded data generally capable of being read in ~~one of~~ at least two alternative possible ways, thereby returning the value of at least two different 8-bit decoded data.

40. (Currently amended) The table according to claim 39, wherein said at least one 16-bit encoded data ~~code-word~~ comprises:

at least one transition, said at least one transition being shifted between a pair of encodings differing by one transition position.

41. (Currently amended) The table according to claim 39, further comprising:

a plurality of states, each of said plurality of states having at least one 16-bit encoded data ~~code-word~~ capable of being read in one of two possible ways.

42. (Currently amended) A table for use with an EFM+ encoder comprising:

means for ~~converting-encoding~~ 8-bit ~~coded~~ data into 16-bit encoded data ~~code words~~, at least one 16-bit encoded data ~~code-word~~ generally capable of being read in one of at least two possible ways.

43. (Currently amended) The table according to claim 42, wherein said at least one 16-bit encoded data ~~code-word~~ comprises:

at least one transition; and
means for shifting said at least one transition between a pair of encodings differing by one transition position.

44. (Original) A DVD encoder comprising:

a non-standard sector generator.

45. (Original) The DVD encoder according to claim 44 wherein said non-standard sector generator comprises at least one of a group including a sector header modifier, an EDC modifier.
46. (Original) The DVD encoder according to claim 45 wherein said sector header modifier comprises at least one of a group including an ID (Identification Data) modifier, an IED (ID Error Detection Code) modifier and a CPR_MAI (Copyright Management Information) modifier.
47. (Currently amended) A DVD encoder comprising:
an error correction disabler; and
an ambiguous symbol generator, wherein said generated ambiguous symbol has a value which can be read as either a first value or a second alternate value.
48. (Original) The DVD encoder according to claim 47 wherein said an error correction disabler comprises:
an ECC block number selector;
a row and column number selector; and
an address comparator in communication with said ECC block number selector and said row and column number selector.
49. (Original) The DVD encoder according to claim 47 wherein said ambiguous symbol generator comprises:
standard main conversion and substitution tables;
at least one table of ambiguous symbols; and
a selector in communication with said standard main conversion and substitution tables and said at least one table of ambiguous symbols, said selector determining which of said standard main conversion and substitution tables and said at least one table of ambiguous symbols to use for encoding at least one data symbol.
50. (Original) A DVD encoder comprising:
an ECC block invalidator.

51. (Original) The DVD encoder according to claim 50 wherein said ECC block invalidator comprises:

an outer parity symbols (P0) invalidator;
an inner parity symbols (PI) invalidator; and
a data symbol replacer.

52. (Original) A DVD encoder comprising:

an invalid Reed-Solomon parity symbol generator.

53. (Original) A DVD disc comprising:

at least one sector, configured to require at least two read operations to be read correctly.

54. (Currently amended) A DVD disc comprising:

a signature, said signature having at least one ambiguity resulting from at least one ambiguous symbol inserted into an ECC block. during EFM+ encoding and having partially disabled error correction, said partially disabled error correction being produced prior to EFM+ encoding, wherein said ambiguous symbol has a value which can be read as either a first value or a second alternate value .

55. (Original) The DVD disc according to claim 54, wherein said at least one ambiguous symbol comprises:

at least one encoded data symbol in at least one byte in at least one column of the ECC block, said at least one encoded data symbol being the corresponding ambiguous representation of said at least one data symbol.

56. (Original) The DVD disc according to claim 54, wherein said partially disabled error correction comprises:

at least one invalid outer parity symbol (P0); and
at least one invalid inner parity symbol (PI).

57. (Original) The DVD disc according to claim 54, wherein said partially disabled error correction further comprises:

at least one substituted outer parity symbols (P0); and
 at least one substituted inner parity symbol (PI).

58. (Currently amended) The DVD disc according to claim 54, wherein said ~~signature is~~
~~validatable by requiring a greater number of reads for a processed sector on the disc than the~~
~~number of reads for an unprocessed sector~~ DVD is authentic if generally more reads are
required to successfully read a processed sector than an unprocessed sector.

59. (Currently amended) The DVD disc according to claim 54, wherein said ~~signature is~~
~~validatable valid by requiring a pre-determined time to be read~~ DVD is authentic if generally
more time is required to successfully read a processed sector than an unprocessed sector.

60. (Currently amended) A DVD disc comprising:
 means for producing a signature on a DVD disc, said signature comprising:
 means for partially disabling error correction prior to EFM+
 encoding; and
 means for introducing at least one ambiguous symbol into an ECC block
 during EFM+ encoding, said ambiguous symbol having a value which can be read as
either a first value or a second alternate value .

61. (Currently amended) A DVD disc comprising:
 a signature having at least one altered component in the lead-in zone of the
 DVD, said alteration being performed during encoding.

62. (Currently amended) A DVD disc comprising:
 at least one altered sector in the data zone of the DVD said at least one sector
 being generally unreadable, said at least one altered sector being generated during
encoding.

63. (Currently amended) A DVD disc comprising:
 at least one appended ~~or replaced~~ sector in the data zone of the DVD; and

at least one amended sector in the data zone of the DVD, said at least one sector being generally unreadable, said appended and amended sectors being generated during encoding.

64. (Original) A DVD encoder comprising:
means for invalidating an ECC block.
65. (Original) The DVD encoder according to claim 64 wherein said means for invalidating an ECC block comprises:
means for invalidating an outer parity symbols (P0);
means for invalidating an inner parity symbols (PI); and
means for replacing a data symbol.